REMARKS

Claims 1-5, 26-31, and 34-36 are now pending in this application, claim 36 having been added by the Applicants in this paper. In reply to the non-final Office Action dated September 17, 2003 ("Office Action"), Applicants also submit the following remarks and arguments in response to the Examiner's rejections. In the event that these remarks do not place this application in condition for allowance, Applicants request that the Examiner please contact the undersigned at 404-653-6460, or Robert Stanley at 404-653-6441, to discuss the continued prosecution of this application.

Claim Amendment

Applicants have added claim 36 directed to potassium zirconium carbonate as the crosslinking agent. This claim is fully supported by the original specification in at least page 13, second full paragraph. Further, this claim specifically recites one of the compounds already listed in claim 3, similar to claim 26 specifically reciting ammonium zirconium carbonate. As a result, Applicants submit that the addition of claim 36 adds to no matter to this application.

Rejection under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-5, 26-31, and 34-35 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,281,307 to Smigo et al. in combination with U.S. Patent no. 5,246,544 to Hollenberg et al. The Examiner states that Smigo et al. discloses the use of commonly employed crosslinking agents in combination with a poly(vinyl alcohol)/vinyl amine ("PVA/VA") copolymer as an additive in a paper-making process.

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See Office Action at § 3. The Examiner then further relies upon Hollenberg et al. for support that one of ordinary skill in the art would substitute its disclosed zirconium compounds for the crosslinking agents of Smigo et al., thus achieving the releaseable adhesive of the pending claims. Applicants respectfully traverse this rejection.

In order to establish a *prima facie* case of obviousness, the Examiner must show, in part, that the prior art references teach or suggest all the claim limitations. M.P.E.P. § 2143. Applicants submit that neither Smigo et al. nor Hollenberg et al., either separately or in combination, teaches or suggests that the zirconium-containing compounds of Hollenberg et al. would be effective crosslinkers with the PVA/VA copolymers of Smigo et al.

Applicants have previously submitted that Hollenberg et al. contains no teaching or suggestion that its zirconium-containing compounds can be used to crosslink the amine-containing moieties of the pending claims. *See* Amendment dated January 6, 2003, at 6 ("Amendment"). In support of this argument, Applicants stated that the functional groups in the PVA/VA copolymer of Smigo et al. and the polymers of the pending claims contain active amine moieties that are Lewis bases. Lewis bases are substances that donate an electron pair in forming a covalent bond. *See* Appendix A (specifically listing amine groups as a type of Lewis base).

On the other hand, the polymers of Hollenberg et al., i.e. hydroxyl, carboxyl, sulfonate, sulfate, and phosphate groups, contain active hydrogens that are Brønsted acids. Amendment at 6; *see* Hollenberg et al. at col. 6, lns. 36-39. Brønsted acids are substances that donate a proton. *See* Appendix B (showing hydroxyl, carbonyl, sulfate, and phosphate groups as "typical Brønsted acids"). Hollenberg et al. thus discloses that

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Washington, DC 20005
202.408.4000
Fax 202.408.4400
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its zirconium compounds work with polymers that are Brønsted acids, not Lewis bases like the PVA/VA copolymer of Smigo et al. and the polymer of the pending claims. Therefore, Applicants concluded that one of ordinary skill in the art would not be motivated to modify the polymers of Hollenberg et al., which contain acidic functional groups, with polymers containing basic functional groups to achieve the claimed releaseable adhesives. *See* Amendment at 6. The Examiner apparently found this argument persuasive and withdrew any rejections based solely on Hollenberg et al. *See* Office Action at § 6.

Applicants now submit that the same acid/base distinction addresses and moots any arguments that a modification of Smigo et al. via Hollenberg et al. renders obvious the pending claims. The PVA/VA copolymer disclosed by Smigo et al. contains active amine moieties that are Lewis bases. The polymers of Hollenberg et al. contain functional groups that are Brønsted acids and significantly omits amine groups from its disclosure, like those in the PVA/VA copolymers of Smigo et al. and in the polymers of the pending claims. Therefore, one of ordinary skill in the art would not be motivated to modify Hollenberg et al. by Smigo et al. Further, in light of this distinction, these references in fact teach away from their combination and, thus, cannot support a *prima facie* obviousness rejection. *See In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983); M.P.E.P. § 2145(X)(D)(2) (entitled "References Cannot Be Combined Where Reference Teaches Away from Their Combination"). Because of the conflicting Brønsted acid/Lewis base teachings of the combined references, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness based on

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HENDERSON
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1300 I Street, NW
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Smigo et al. in combination with Hollenberg et al. and therefore ask that this rejection be withdrawn.

In addition, Applicants submit that Smigo et al. by itself cannot render obvious the pending claims. Another requirement of a *prima facie* case of obviousness is that the reference or references teach or suggest all the claim limitations. *See* M.P.E.P. § 2143. Independent claim 1 recites a "releaseable adhesive" composition. Smigo et al. neither teaches nor suggests this limitation and, in regards to the recitation of peel force and sprayability recited in the pending dependent claims, Applicants submit that it is not "tenable that these properties may very well be met by the composition of Smigo et al." Office Action at 3.

To support this position, Applicants demonstrate that the Smigo et al. compositions, even if used with zirconium containing crosslinking agents, cannot achieve the desired properties. Despite the Examiner's continual dismissal of Phuong Van Luu's Declaration (*see* Office Action at § 7), it states unequivocally that adding zirconium compounds to polymers having amine moieties creates a gel. *See* Declaration Under 37 C.F.R. § 1.132 of Phuong Van Luu dated February 2, 2000, at ¶ 6. Even though the Declaration continues by stating that such a gel "could not be used as a creping adhesive," Applicants submit that it equally could not be used as an effective dry end paper additive to increase tensile strength and burst strength as disclosed by Smigo et al. (*see* col. 1, lns. 7-11). Such a gel would inevitably clog the paper-making machinery or result in poor quality paper—a most unintended and ruinous result. Therefore, the Examiner's modification of Smigo et al. would render that reference's teachings unsatisfactory for their intended purpose (*see* M.P.E.P.

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1300 I Street, NW
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202.408.4000
Fax 202.408.4400
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§ 2143.01), providing no motivation to modify its teachings in reaching the claimed releaseable adhesive.

Because one of ordinary skill in the art would not modify Smigo et al. to achieve the composition of the pending claims, Smigo et al. cannot teach or suggest each of the claimed elements. As a result, Applicants submit that any *prima facie* case of obviousness resting only on Smigo et al. must fail.

Double Patenting Rejection

The Examiner has provisionally rejected claims 1-5, 26-31, and 34-35 under the judicially-created doctrine of obviousness-type double patenting over claims 112-117 of co-pending Application Serial No. 09/904,102. The Examiner has stated that a timely filed Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(c) may overcome this rejection. After considering the amendments and remarks made in this paper, if the Examiner believes the pending claims to be in condition for allowance, Applicants request that the Examiner please contact the undersigned regarding an appropriate resolution of this rejection.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests the reconsideration and the continued examination of this application and the timely allowance of the pending claims. In the event that these remarks do not place this application in condition for allowance, Applicants request that the Examiner please

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FARABOW
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DUNNER LLP

1300 I Street, NW
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contact the undersigned at 404-653-6460, or Robert Stanley at 404-653-6441, to discuss the continued prosecution of this application.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P.

Dated: December 16, 2003

By: Reg No 44073
Lori-Ann Johnson
Reg. No. 34,498

Attachments: **Appendix A: Definition of Lewis Base**
Appendix B: Examples of Brønsted Acids

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1300 I Street, NW
Washington, DC 20005
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Fax 202.408.4400
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Phuong Van LUU et al.	)	Group Art Unit: 1713
	)	
Application No.: 09/496,383	)	Examiner: M. L. Reddick
	)	
Filed: February 2, 2000	)	
	)	
For: CROSSLINKABLE CREPING ADHESIVE FORMULATIONS	)	

APPENDIX A

Definition and Examples of Lewis Bases

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HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

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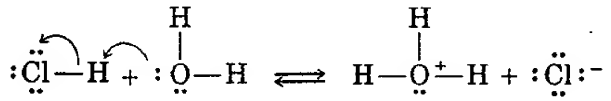
LEWIS BASES

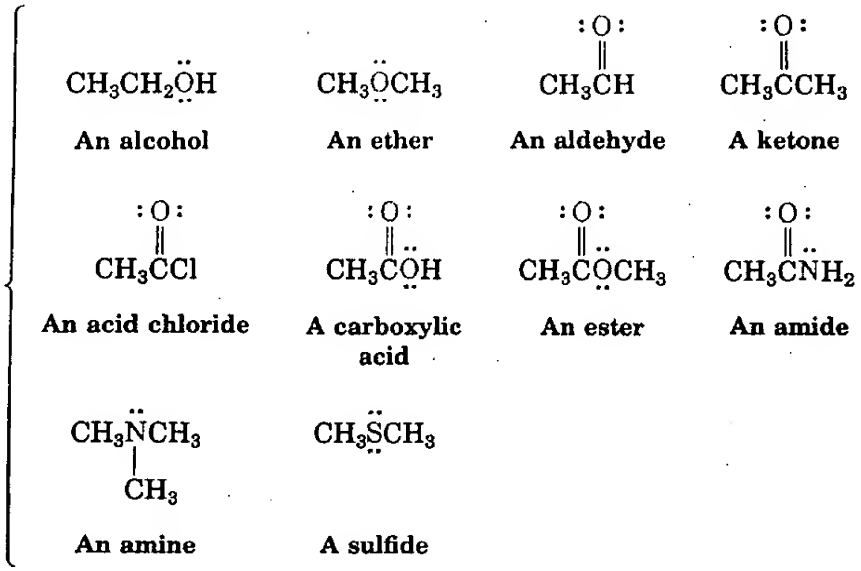
The Lewis definition of basicity—a compound with a pair of nonbonding electrons that it can use in forming a bond to a Lewis acid—is similar to the Brønsted–Lowry definition. Thus, H_2O, with its two pairs of nonbonding electrons (**lone pairs**) on oxygen, acts as a Lewis base by donating an electron pair to a proton in forming the hydronium ion, H_3O^+:



Acid **Lewis base** **Hydronium ion**

In a more general sense, most oxygen- and nitrogen-containing organic compounds are Lewis bases because they have lone pairs of available electrons. Divalent oxygen compounds each have two lone pairs of electrons on oxygen, and trivalent nitrogen compounds have one lone pair. Note in the following examples that some compounds can act as both acids and bases, just as water can. Alcohols and carboxylic acids, for instance, act as acids when they donate a proton but as bases when their oxygen atom accepts a proton.

Some Lewis bases

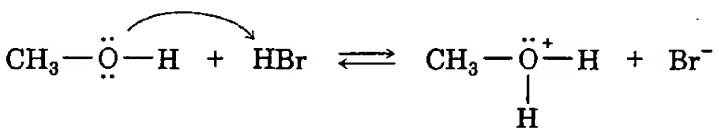


An alcohol **An ether** **An aldehyde** **A ketone**

An acid chloride **A carboxylic acid** **An ester** **An amide**

An amine **A sulfide**

For example:



Methyl alcohol (base) **Hydrogen bromide (acid)** **Methyloxonium bromide**

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Filed: February 2, 2000	)	
	)	
For: CROSSLINKABLE CREPING ADHESIVE FORMULATIONS	)	

APPENDIX B

Examples of Brønsted Acids

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FARABOW
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Washington, DC 20005
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Typical Brønsted Acids and Their Conjugate Bases

Compound	K_a	pK_a	*ConjugateBase*	K_b	pK_b
HI	3×10^{9}	-9.5	I^-	3×10^{-24}	23.5
HCl	1×10^{6}	-6	Cl^-	1×10^{-20}	20
H_2SO_4	1×10^{3}	-3	HSO_4^-	1×10^{-17}	17
H_3O^+	55	-1.7	H_2O	1.8×10^{-16}	15.7
HNO_3	28	-1.4	NO_3^-	3.6×10^{-16}	15.4
H_3PO_4	7.1×10^{-3}	2.1	$H_2PO_4^-$	1.4×10^{-12}	11.9
CH_3CO_2H	1.8×10^{-5}	4.7	$CH_3CO_2^-$	5.6×10^{-10}	9.3
H_2S	1.0×10^{-7}	7.0	HS^-	1×10^{-7}	7.0
H_2O	1.8×10^{-16}	15.7	OH^-	55	-1.7
CH_3OH	1×10^{-18}	18	CH_3O^-	1×10^{4}	-4
HCCH	1×10^{-25}	25	HCC^-	1×10^{11}	-11
NH_3	1×10^{-33}	33	NH_2^-	1×10^{19}	-19
H_2	1×10^{-35}	35	H^-	1×10^{21}	-21
$CH_2{=}CH_2$	1×10^{-44}	44	$CH_2{=}CH^-$	1×10^{30}	-30
CH_4	1×10^{-49}	49	CH_3^-	1×10^{35}	-35